

WHAT IS CLAIMED IS:

1. A dielectric ceramic having crystal grains and crystal grain boundaries between the crystal grains comprising:

a perovskite compound having the general formula ABO_3 , as a major component, in which A represents Ba and Ca, or Ba, Ca and Sr, and B represents Ti, or Ti and at least one of Zr and Hf, and

an additive component containing Si, R and M, in which R represents at least one of La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu and Y, and M represents at least one of Mn, Ni, Co, Fe, Cr, Cu, Mg, Al, V, Mo and W,

wherein the additive component is not solid-dissolved and, wherein the major component exists in at least about 90% of the cross-section of at least about 85% by number of all of the crystal grains, and

wherein at least Ba, Ca, Ti, Si, R and the M are found at about 85% or more of the analytical points in the crystal grain boundaries.

2. A dielectric ceramic according to Claim 1, wherein $Ca_g/Ti_g < Ca_b/Ti_b$, in which Ca_g is the amount of Ca, and Ti_g is the amount of Ti contained in the crystal grains, and Ca_b is the amount of Ca, and Ti_b is the amount of Ti contained in the crystal grain boundaries.

3. A dielectric ceramic according to Claim 2, wherein the concentration of Ca in the crystal grains is in the range of about 1 to 20 molar percent based on the amount of the element A in the major component ABO_3 .

4. A dielectric ceramic according to Claim 3, wherein the concentrations on an element basis of the R and the M in the additive component are in the ranges of about 0.05 to 1.5 moles and about 0.1 to 2 moles, respectively, based on 100 moles of the major component.

5. A dielectric ceramic according to Claim 4, wherein the perovskite has a crystallographic axial ratio c/a of at least about 1.009.

6. A dielectric ceramic according to Claim 1, wherein the concentration of Ca in the crystal grains is in the range of about 1 to 20 molar percent based on the amount of the element A in the major component ABO_3 .

7. A dielectric ceramic according to Claim 1, wherein the concentrations on an element basis of the R and the M in the additive component are in the ranges of about 0.05 to 1.5 moles and about 0.1 to 2 moles, respectively, based on 100 moles of the major component.

8. A dielectric ceramic according to Claim 1, wherein the perovskite has a crystallographic axial ratio c/a of at least about 1.009.

9. A method of producing a dielectric ceramic comprising the steps of: providing a mixture of (a) a perovskite compound having the general formula ABO_3 in which A represents Ba and Ca, or Ba, Ca and Sr, and B represents Ti, or Ti and at least one of Zr and Hf, the perovskite compound having a crystallographic axial ratio c/a of at least about 1.009 and (b) a calcined material containing at least Ba, Ca, Ti, Si, R and M, in which R is at least one of La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu and Y, and M is at least one of Mn, Ni, Co, Fe, Cr, Cu, Mg, Al, V, Mo and W; and firing the mixture of the perovskite compound and the calcined material.

10. A method of producing a dielectric ceramic according to Claim 9, wherein the mole ratio Ca/Ti of the perovskite compound is smaller than the mole ratio Ca/Ti in the calcined material.

11. A method of producing a dielectric ceramic according to Claim 10, wherein the concentrations on an element basis of the R and the M in the calcined

material are in the ranges of about 0.05 to 1.5 moles and about 0.1 to 2 moles, respectively, based on 100 moles of the perovskite.

12. A monolithic ceramic capacitor comprising a laminate which comprises at least three laminated dielectric ceramic layers and at least two internal electrodes extended along different interfaces between dielectric ceramic layers and overlapping each other in the lamination direction; and

a pair of external electrodes on outer surfaces of the laminate so as to be electrically connected to different internal electrodes;

wherein the dielectric ceramic layers comprise the dielectric ceramic of Claim 5.

13. A monolithic ceramic capacitor according to Claim 12, wherein the internal electrodes comprise a base metal.

14. A monolithic ceramic capacitor according to Claim 13, wherein the base metal comprises nickel or copper.

15. A monolithic ceramic capacitor according to Claim 14, wherein the external electrodes comprise a base metal.

16. A monolithic ceramic capacitor according to Claim 13, wherein the external electrodes comprise a base metal.

17. A monolithic ceramic capacitor comprising a laminate which comprises at least three laminated dielectric ceramic layers and at least two internal electrodes extended along different interfaces between dielectric ceramic layers and overlapping each other in the lamination direction; and

a pair of external electrodes on outer surfaces of the laminate so as to be electrically connected to different internal electrodes;

wherein the dielectric ceramic layers comprise the dielectric ceramic of Claim 1.

18. A monolithic ceramic capacitor according to Claim 17, wherein the internal electrodes comprise a base metal.

19. A monolithic ceramic capacitor according to Claim 18, wherein the base metal comprises nickel or copper.

20. A monolithic ceramic capacitor comprising a laminate which comprises at least three laminated dielectric ceramic layers and at least two internal electrodes extended along different interfaces between dielectric ceramic layers and overlapping each other in the lamination direction; and

a pair of external electrodes on outer surfaces of the laminate so as to be electrically connected to different internal electrodes;

wherein the dielectric ceramic layers comprise the dielectric ceramic of Claim 4.